

IN THE CLAIMS:

1. (currently amended) A microporous crystalline material of zeolitic nature, wherein characterized in that the material has, in a anhydrous state calcinated at temperatures between 300°C and 800°C, an X-ray diffraction pattern according to

d(Å)	(I/IO)*100
32.82±0.02	vs
11.97±0.03	w
10.05±0.04	w
9.39±0.06	m
7.05±0.05	w
6.93±0.02	w
6.56±0.05	w
5.64±0.07	w
4.77±0.08	w
4.27±0.04	w
3.98±0.08	w
3.89±0.08	w
3.72±0.03	w
3.53±0.05	w
3.46±0.07	w
3.34±0.06	w
2.90±0.08	w

wherein

w is a weak relative intensity between 0 and 20%;

m is an average relative intensity between 20 & 40%;

s is an average relative intensity between 40 and 60%;

vs is an average relative intensity between 60 and 100%

and in that it has an empirical formula



wherein

x has a value less than 0.2;

y has a value less than 0.1:

M is at least one +n charge inorganic cation,

X is at least one chemical element with a +3 oxidation state, ~~preferably selected from the group consisting of Al, Ga, B, Cr and Fe;~~

Y is at least one chemical element with a +4 oxidation state, ~~preferably selected from the group consisting of Ge, Ti, Sn and V.~~

2. (currently amended) A crystalline material according to claim 1, wherein ~~characterized in that~~

x has a value less than 0.1, ~~preferably less than 0.02,~~

y has a value less than 0.05, ~~preferably less than 0.02.~~

3. (currently amended) A crystalline material according to ~~any of claims 1 and 2,~~ wherein ~~characterized in that~~ x has the value of 0.

4. (currently amended) A crystalline material according to any of claims 1 and 2, wherein ~~characterized in that~~ M is H.

5. (currently amended) A crystalline material according to any of claims 1 to 4, ~~characterized in that it has~~ having specific surface characteristics measured by N₂ adsorption-desorption, with an external surface of at least 100 m²g⁻¹, and preferably with more than 400 m²g⁻¹.

6. (currently amended) A process to synthesize the crystalline material of any of claims 1 to 5, ~~characterized in that it comprises~~ comprising

a first step wherein a precursor is prepared by subjecting to heating, with or without stirring, at a temperature between 100 and 225°C, ~~preferably between 125 and 200°C~~, a reaction mixture that contains

a SiO₂ source,

optionally a GeO₂ source,

optionally a source of at least another tetravalent element Y ~~preferably selected from the group consisting of Ge, Ti, V and Sn~~,

optionally a source of at least another trivalent element X ~~preferably selected from the group consisting of Al, B, Ga, Fe and Cr~~,

an organic cation 1-methyl-1,4-diazabicyclo[2,2,2] octane,

and water,

wherein the reaction mixture has a composition, in terms of molar ratios of oxides, comprised in the ranges of

ROH/SiO₂=0.01-1.0, ~~preferably 0.1-1.0~~,

M_{1/n}OH/SiO₂=0-1.0, ~~preferably 0-0.2~~,

X₂O₃/SiO₂=0-0.1, ~~preferably 0-0.05, and more preferably 0-0.01~~,

YO₂/(YO₂+SiO₂) less than 1, ~~preferably less than 0.1~~,

~~— H₂O/SiO₂=0-100, preferably 1-50,~~

wherein

M is at least a +n charge inorganic cation;

X is at least a trivalent element ~~preferably selected from the group consisting of Al, B, Ga, Fe and Cr~~;

Y is at least a tetravalent element ~~preferably selected from the group consisting of Ge, Ti, Sn and V~~;

R is an organic cation, ~~preferably 1-methyl-1,4-diazabicyclo[2,2,2]octane~~

until crystallization of the reaction mixture is achieved;

a second stage wherein the precursor is subjected to swelling in a swelling solution in order to obtain a swollen laminar material;

a third stage wherein the swollen laminar material is washed and dried in order to obtain a dry swollen solid;

a fourth stage wherein the dry swollen solid is subjected to at least partial delamination in water in order to obtain a suspension that contains a material at least partially delaminated;

a fifth stage wherein the material at least partially delaminated is separated from the suspension;

a sixth stage wherein the organic wastes are removed from the at least partially delaminated material, by means of a treatment selected from the group consisting of cationic exchange, calcination and combinations thereof.

7. (currently amended) A process according to claim 6, wherein characterized in ~~that~~ the organic cation 1-methyl-1,4-diazabicyclo[2,2,2] octane is added in the form of a hydroxide and another salt, ~~preferably halide~~, to the reaction mixture.

8. (currently amended) A process according to claim 6 or 7, wherein characterized ~~in that~~ an amount of crystalline material, ~~preferably with the characteristics of the material of one of the claims 1 to 4~~, as a the-crystallization promoter is added to the reaction mixture, said amount being ~~comprised~~ between 0.01 to 15%, ~~preferably 0.05 to 5%~~ by weight referred to the total silica added.

9. (currently amended) A process according to one of claims 6 to 8, wherein ~~characterized in that~~ the precursor has an X-ray diffractogram that comprises values corresponding to

d(Å)	(I/IO)*100	d(Å)	(I/IO)*100
11.22±0.02	vs	3.60±0.08	s
10.10±0.03	w	3.52±0.05	vs
8.81±0.05	w	3.42±0.06	s
7.05±0.01	w	3.36±0.04	s
6.30±0.01	m	3.32±0.05	w
5.60±0.02	w	3.30±0.01	w
5.28±0.05	s	3.14±0.07	w
4.98±0.06	s	3.10±0.02	w
4.72±0.01	w	3.09±0.03	w
4.38±0.02	s	3.01±0.01	w
4.21±0.02	s	2.81±0.04	w
3.90±0.03	w	2.61±0.04	w
3.83±0.08	m	3.51±0.05	w
3.73±0.07	m	2.48±0.09	w

wherein

w is a weak relative intensity between 0 and 20%;

m is an average relative intensity between 20 & 40%;

s is an average relative intensity between 40 and 60%;

vs is an average relative intensity between 60 and 100%.

10. (original) A process according to claim 6, wherein the swelling solution with which the dry swollen solid is obtained, contains organic molecules that are intercalated in order to produce a separation of sheets of the precursor.

11. (currently amended) A process according to claim 10, wherein characterized
~~in that~~ the organic molecules used in the swelling solution with which the dry swollen

solid is obtained are selected between molecules that have a proton acceptor group and a hydrocarbonaceous chain.

12. (currently amended) A process according to claim 10 or 11, wherein ~~characterized in that~~ the organic molecules used in the swelling solution with which the dry swollen solid is obtained are selected from among alkylammonium molecules, with a number of carbon atoms between 4 and 24, ~~preferably between 16 and 19.~~

13. (currently amended) A process according to claim 10, 11 or 12, wherein ~~characterized in that~~ the organic molecules used in the swelling solution with which the dry swollen solid is obtained are molecules of cetyltrimethylammonium chloride (CTMA⁺).

14. (currently amended) A process according to claim 6, 10, 11, 12 or 13 , wherein ~~characterized in that~~ the swelling solution comprises

a suspension of the precursor in a solid suspension between 10 and up to 50% by weight;

a cetyltrimethylammonium hydroxide solution (OH⁻, Br⁻) between 10 up to 50% by weight;

a tetrapropylammonium solution (TPA⁺) (OH⁻, Br⁻) between 20 up to 60% by weight.

15. (currently amended) A process according to claim 6, 10, 11, 13 or 14, wherein ~~characterized in that~~ the swelling solution comprises

a suspension of the solid precursor up to 20% by weight;

a cetyltrimethylammonium hydroxide solution (OH⁻, Br⁻) up to 29% by weight;

a tetrapropylammonium solution (OH⁻, Br⁻) up to 40% by weight;

with a weight ratio of precursor suspension : cetyltrimethylammonium hydroxide (OH⁻, Br⁻) solution : tetrapropylammonium (OH⁻, Br⁻) solution of 27:105:33.

16. (currently amended) A process according to claim 13, 14 or 15, wherein ~~characterized in that~~ the dry swollen solid has X-ray diffraction values corresponding to

d(Å)	(I/IO)*100	d(Å)	(I/IO)*100
37.89±0.02	vs	4.71±0.03	w
14.50±0.02	s	4.23±0.04	m
12.50±0.03	m	4.14±0.08	m
11.73±0.01	w	3.95±0.09	m
10.01±0.04	w	3.86±0.08	m
7.66±0.05	w	3.82±0.09	m
7.36±0.03	w	3.51±0.08	m
6.99±0.06	w	3.43±0.08	w
6.55±0.05	w	3.31±0.05	w
5.98±0.01	w	3.18±0.07	w
5.59±0.08	w	2.88±0.09	w
5.11±0.04	w		

wherein

w is a weak relative intensity between 0 and 20%;

m is an average relative intensity between 20 & 40%;

s is an average relative intensity between 40 and 60%;

vs is an average relative intensity between 60 and 100%.

17. (currently amended) A process according to claim 6, wherein ~~characterized in that~~ the fourth step is carried out at least by means of a technique selected from the group consisting of mechanical stirring, ultrasound, spray-drying, lyophilization and combinations thereof.

18. (original) A process according to claim 6, wherein ~~characterized in that~~ the suspension that contains the at least partially delaminated material is subjected to flocculation.

19. (original) A process according to claim 6, wherein ~~characterized in that~~, in the sixth stage, the at least partially delaminated material is calcinated in an air flow, at a temperature between 300°C and 800°C for at least 3 hours.

20. (currently amended) A process according to claim 19, wherein ~~characterized in that~~ the temperature is between 400°C and 600°C.

21. (new) A crystalline material according to claim 1, wherein X is at least one chemical element with a +3 oxidation state selected from the group consisting of Al, Ga, B, Cr and Fe.

22. (new) A crystalline material according to claim 1, wherein Y is at least one chemical element with a +4 oxidation state selected from the group consisting of Ge, Ti, Sn and V.